

Attorney Docket No.: 0400196

**REMARKS**

Prior to the present amendment, claims 14-33 were pending in the present application. By the present amendment and response, claims 14, 25, 26, 27, 29, and 31-33 have been amended. Thus, claims 14-33 remain in the present application. Reconsideration and allowance of pending claims 14-33 in view of the above amendment and the following remarks are respectfully requested.

**A. Objection to the Drawings under 37 CFR §1.83(a)**

The Examiner has objected to the drawings under 37 CFR §1.83(a) alleging that the drawings do not show every feature of the invention specified in the claims. More particularly, the Examiner alleges that the power transistor switching stage and the power switching stage are not shown in the drawings. Applicant has amended claim 14 to provide that the input of the EMI filter is configured to receive an output voltage from a power switching stage. Applicant has also amended claim 25 to provide that the input terminals of the active EMI filter are configured to receive an output voltage of a power switching stage. As shown in the present application, in one embodiment an active EMI filter has input terminals A and B. *See, e.g., Figures 1 and 2 of the present application.* As shown and described in the present application, input terminals A and B are configured to receive an output voltage from a power switching stage. *See, e.g., Figures 1 and 2 and related text of the present application.* Thus, the Applicant submits that the Examiner's objection is overcome.

Attorney Docket No.: 0400196

**B. Rejection of Claims 14-15 and 21-23 under 35 USC §102(e)**

The Examiner has rejected claims 14-15 and 21-23 under 35 USC §102(e) as allegedly being anticipated by U.S. Patent No. 6,636,107 B2 to Brian R. Pelly (hereinafter "Pelly"). For the reasons discussed below, Applicant respectfully submits that the present invention, as defined by amended independent claim 14, is patentably distinguishable over Pelly.

The present invention, as defined by amended independent claim 14, includes an active EMI filter including an input and an output, the input configured to receive an output voltage from a power switching stage and the output of the active EMI filter configured to provide a filtered output voltage to a load, a current sensor sensing a common mode current to the load, an amplifier stage including first and second transistors each controlled by the current sensor, collectors of the first and second transistors connected together, isolating circuitry coupled to the connected collectors of the first and second transistors and a ground line, where the isolating circuitry passes a current to cancel the common mode current in the ground line. As disclosed in the present application, in one embodiment, an EMI filter includes input terminals A and B coupled across the output stage of a power supply and output terminals OUT1 and OUT2 coupled to a load. *See, e.g., Figure 1 and paragraphs [0013]-[0014] of the present application as published.*

As described in the present application, in one embodiment, the active EMI filter includes an amplifier stage comprising two transistors Q1 and Q2 where transistors Q1

Attorney Docket No.: 0400196

and Q2 have their collectors connected together through resistor R1 and capacitor C1 coupled to the ground return line which couples the input and output grounds. *See, e.g.,* Figure 2 and paragraph [0015] of the present application as published. The active EMI filter cancels the common mode current which flows between the input and output, that is, between terminals A and B and terminals OUT1 and OUT2. *id.*

As shown in Figure 2, the base and emitter of transistors Q1 and Q2 are controlled by secondaries CT3 and CT4 of current transformer CT and resistors R2, R3 and R4 and diodes D1 and D2 provide a power source for transistors Q1 and Q2 at their collectors. *See, e.g.,* Figure 2 and paragraphs [0015] and [0016] of the present application as published. Thus, according to one embodiment, the amplifier stage of the active EMI filter can be provided while not being coupled into the DC bus. *See, e.g.,* paragraph [0005] of the present application as published. As such, the physical size of the active EMI filter can be reduced and the voltage levels at which the active EMI filter operates can be lower allowing for use of lower rated components. *See, e.g.,* Figure 2 and paragraph [0006] of the present application as published.

In contrast to the present invention as defined by amended independent claim 14, Pelly fails to disclose an active EMI filter including an input and an output, the input configured to receive an output voltage from a power switching stage and the output of the active EMI filter configured to provide a filtered output voltage to a load, a current sensor sensing a common mode current to the load, an amplifier stage including first and second transistors each controlled by the current sensor, collectors of the first and second

Attorney Docket No.: 0400196

transistors connected together, isolating circuitry coupled to the connected collectors of the first and second transistors and a ground line, where the isolating circuitry passes a current to cancel the common mode current in the ground line. Rather, Pelly specifically discloses an active filter consists of a pair of transistors  $Q_1$  and  $Q_2$ , connected across the d-c output lines of rectifier 40 with their emitters connected at node E. *See*, e.g., Figures 1 and 3 and column 2, lines 45-55 of Pelly.

As disclosed in Pelly, transistors  $Q_1$  and  $Q_2$  define amplifiers, which are controlled by output winding 44 of a differential transformer having input windings 45 and 46 connected in the positive and negative output busses of rectifier 40. *id.* Winding 44 is connected between the control terminals of transistors  $Q_1$  and  $Q_2$  and the common emitter node E. *id.* A d-c isolating capacitor 47 is connected to ground line 43 at node C. *id.* Thus, Pelly cannot show, for example, an amplifier stage including first and second transistors each controlled by a current sensor, collectors of the first and second transistors connected together, and isolating circuitry coupled to the connected collectors of the first and second transistors and a ground line. Thus, Applicants submit that Pelly fails to make obvious the present invention as defined by amended independent claim 14.

For the foregoing reasons, Applicant respectfully submits that, at the time the invention defined by amended independent claim 14 was made, the invention would not have been obvious to a person of ordinary skill in the art by Pelly, either singly or in combination. Thus, amended independent claim 14 is patentably distinguishable over Pelly and, as such, claims 15 and 21-23 depending from amended independent claim 14

Attorney Docket No.: 0400196

are, *a fortiori*, also patentably distinguishable over Pelly for at least the reasons presented above and also for additional limitations contained in each dependent claim.

**C. Rejection of Claim 20 under 35 USC §103(a)**

The Examiner has rejected claim 20 under 35 USC §103(a) as being unpatentable for alleged obviousness by Pelly in view of U.S Patent No. 5,668,464 [*sic*] by Ohkawa et al. (hereinafter “Ohkawa”). As discussed above, amended independent claim 14 is patentably distinguishable over Pelly. Thus claim 20 depending from amended independent claim 14 is, *a fortiori*, also patentably distinguishable over Pelly, or any combination of Pelly with other cited art, such as Ohkawa, for at least the reasons presented above and also for additional limitations contained in the dependent claim.

**D. Rejection of Claims 14 and 24 under 35 USC §103(a)**

The Examiner has rejected claims 14 and 24 under 35 USC §103(a) as being unpatentable for alleged obviousness by Pelly in view of U.S Patent No. 5,731,689 by Hirohide Sato (hereinafter “Sato”). As discussed above, amended independent claim 14 is patentably distinguishable over Pelly, either singly, or in combination with other art, such as Sato. Thus claim 24 depending from amended independent claim 14 is, *a fortiori*, also patentably distinguishable over Pelly, or any combination of Pelly with other cited art, such as Ohkawa, for at least the reasons presented above and also for additional limitations contained in the dependent claim.

Attorney Docket No.: 0400196

**E. Rejection of Claims 16-19 under 35 USC §103(a)**

The Examiner has rejected claims 16-19 under 35 USC §103(a) as being unpatentable for alleged obviousness by Pelly in view of U.S Patent No. 6,842,069 by Takahashi et al. (hereinafter “Takahashi”). As discussed above, amended independent claim 14 is patentably distinguishable over Pelly. Thus claims 16-19 depending from amended independent claim 14 are, *a fortiori*, also patentably distinguishable over Pelly, or any combination of Pelly with other cited art, such as Takahashi, for at least the reasons presented above and also for additional limitations contained in each dependent claim.

**F. Rejection of Claims 25 and 27-32 under 35 USC §103(a)**

The Examiner has rejected claims 25 and 27-32 under 35 USC §103(a) as allegedly being obvious by Pelly in view of U.S. Patent No. 6,700,806 by Johann W. Kolar (hereinafter “Kolar”) in further view of Takahashi. For the reasons discussed below, Applicant respectfully submits that the present invention, as defined by amended independent claim 25, is patentably distinguishable over Pelly, Kolar, and Takahashi, either singly, or in combination.

The present invention, as defined by amended independent claim 14, includes an active EMI filter including first and second input terminals and first and second output terminals and a ground return line connected to a ground return line terminal, the input

Attorney Docket No.: 0400196

terminals of the active EMI filter configured to receive an output voltage of a power switching stage over a voltage line and the output terminals of the active EMI filter providing a filtered output voltage, where the active EMI filter comprises a current transformer including first and second primary windings and first and second secondary windings, the first and second secondary windings being connected to have common mode current additively reflected in the first and second secondary windings to control an amplifier stage of the active EMI filter, the amplifier stage configured to not be coupled into the voltage line, where the active EMI filter cancels the common mode current that flows between the input terminals and the output terminals. As disclosed in the present application, in one embodiment, an EMI filter includes input terminals A and B coupled across the output stage of a power supply and output terminals OUT1 and OUT2 coupled to a load. *See, e.g.,* Figure 1 and paragraphs [0013]-[0014] of the present application as published.

As described in the present application, in one embodiment, the active EMI filter includes an amplifier stage comprising two transistors Q1 and Q2 where transistors Q1 and Q2 have their collectors connected together through resistor R1 and capacitor C1 coupled to the ground return line which couples the input and output grounds. *See, e.g.,* Figure 2 and paragraph [0015] of the present application as published. The active EMI filter cancels the common mode current which flows between the input and output, that is, between terminals A and B and terminals OUT1 and OUT2. *id.*

Attorney Docket No.: 0400196

As shown in Figure 2, the base and emitter of transistors Q1 and Q2 are controlled by secondaries CT3 and CT4 of current transformer CT and resistors R2, R3 and R4 and diodes D1 and D2 provide a power source for transistors Q1 and Q2 at their collectors. *See, e.g.,* Figure 2 and paragraphs [0015] and [0016] of the present application as published. Thus, according to one embodiment, the amplifier stage of the active EMI filter can be provided while not being coupled into the DC bus. *See, e.g.,* paragraph [0005] of the present application as published. As such, the physical size of the active EMI filter can be reduced and the voltage levels at which the active EMI filter operates can be lower allowing for use of lower rated components. *See, e.g.,* Figure 2 and paragraph [0006] of the present application as published.

In contrast to the present invention as defined by amended independent claim 25, Pelly fails to disclose an active EMI filter including first and second input terminals and first and second output terminals and a ground return line connected to a ground return line terminal, the input terminals of the active EMI filter configured to receive an output voltage of a power switching stage over a voltage line and the output terminals of the active EMI filter providing a filtered output voltage, where the active EMI filter comprises a current transformer including first and second primary windings and first and second secondary windings, the first and second secondary windings being connected to have common mode current additively reflected in the first and second secondary windings to control an amplifier stage of the active EMI filter, the amplifier stage configured to not be coupled into the voltage line, where the active EMI filter cancels the

Attorney Docket No.: 0400196

common mode current that flows between the input terminals and the output terminals.

Rather, Pelly specifically discloses an active filter consists of a pair of transistors  $Q_1$  and  $Q_2$ , connected across the d-c output lines of rectifier 40 with their emitters connected at node E. *See, e.g.*, Figures 1 and 3 and column 2, lines 45-55 of Pelly.

As disclosed in Pelly, transistors  $Q_1$  and  $Q_2$  define amplifiers, which are controlled by output winding 44 of a differential transformer having input windings 45 and 46 connected in the positive and negative output busses of rectifier 40. *id.* Winding 44 is connected between the control terminals of transistors  $Q_1$  and  $Q_2$  and the common emitter node E. *id.* A d-c isolating capacitor 47 is connected to ground line 43 at node C. *id.* Thus, Pelly cannot show, for example, a current transformer including first and second primary windings and first and second secondary windings, the first and second secondary windings being connected to have common mode current additively reflected in the first and second secondary windings to control an amplifier stage of the active EMI filter, the amplifier stage configured to not be coupled into the voltage line. Thus, Applicants submit that Pelly fails to make obvious the present invention as defined by amended independent claim 25.

Furthermore, Kolar and Takahashi fail to disclose, for example, a current transformer including first and second primary windings and first and second secondary windings, the first and second secondary windings being connected to have common mode current additively reflected in the first and second secondary windings to control an amplifier stage of the active EMI filter, the amplifier stage configured to not be coupled

Attorney Docket No.: 0400196

into the voltage line. Thus, Applicants submit that Kolar and Takahashi fail to make obvious the present invention as defined by amended independent claim 25.

For the foregoing reasons, Applicant respectfully submits that, at the time the invention defined by amended independent claim 25 was made, the invention would not have been obvious to a person of ordinary skill in the art by Pelly, Kolar, and Takahashi, either singly, or in any combination. Thus, amended independent claim 25 is patentably distinguishable over Pelly, Kolar, and Takahashi and, as such, claims 27-32 depending from amended independent claim 25 are, *a fortiori*, also patentably distinguishable over Pelly, Kolar, and Takahashi for at least the reasons presented above and also for additional limitations contained in each dependent claim.

#### **G. Rejection of Claim 26 under 35 USC §103(a)**

The Examiner has rejected claim 26 under 35 USC §103(a) as being unpatentable for alleged obviousness by Pelly in view of Kolar in view of Takahashi in view of Ohkawa. As discussed above, amended independent claim 25 is patentably distinguishable over Pelly, Kolar, and Takahashi. Thus claim 26 depending from amended independent claim 25 is, *a fortiori*, also patentably distinguishable over Pelly, Kolar, and Takahashi, or any combination of Pelly, Kolar, and Takahashi with other cited art, such as Ohkawa, for at least the reasons presented above and also for additional limitations contained in the dependent claim.

Attorney Docket No.: 0400196

**H. Rejection of Claims 25 and 33 under 35 USC §103(a)**

The Examiner has rejected claims 25 and 33 under 35 USC §103(a) as being unpatentable for alleged obviousness by Pelly in view of Kolar in view of Takahashi in view of Sato. As discussed above, amended independent claim 25 is patentably distinguishable over Pelly, Kolar, and Takahashi. Thus claims 25 and 33 depending from amended independent claim 25 are, *a fortiori*, also patentably distinguishable over Pelly, Kolar, and Takahashi, or any combination of Pelly, Kolar, and Takahashi with other cited art, such as Sato, for at least the reasons presented above and also for additional limitations contained in each dependent claim.

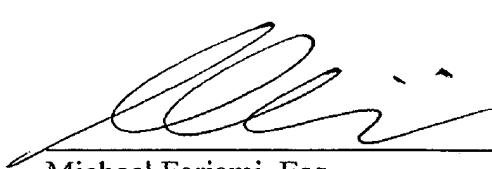
**I. Conclusion**

For all the foregoing reasons pending claims 14-33 are patentably distinguishable over the cited art, and an early allowance of pending claims 14-33 is respectfully requested.

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication, or credit any overpayment to Deposit Account No. 50-0731.

Attorney Docket No.: 0400196

Respectfully Submitted,  
FARJAMI & FARJAMI LLP

Date: 10/6/10

Michael Farjami, Esq.  
Reg. No. 38,135

FARJAMI & FARJAMI LLP  
26522 La Alameda Ave., Suite 360  
Mission Viejo, California 92691  
Telephone: (949) 282-1000  
Facsimile: (949) 282-1002

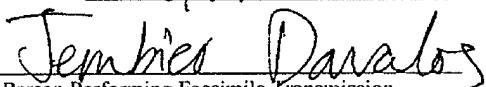
CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being filed by facsimile transmission to United States Patent and Trademark Office at facsimile number 571-273-8300 on the date stated below. The facsimile transmission report indicated that the facsimile transmission was successful.

Date of Facsimile:

10/6/10

Name of Person Performing Facsimile Transmission



Signature

Date

